Respectfully submitted,

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By 

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Attachments - Clean Version of Abstract
- Marked-Up Version of Claims

MARKED-UP VERSION OF CLAIMS

1. (Amended) A method for determining [the] properties of a particle, including [its] response of the particle to exposure to a chemical or physical agent, and for separating particles of more than one type, comprising [the] steps of applying to a suspension of particles a first signal at a first frequency and at a plurality of different phases whereby the particles experience a [travelling] traveling wave dielectrophoretic force of which there is a real part which is negative and of which there is also an imaginary part, and simultaneously applying a second signal at a second frequency whereby either the real part of the imaginary part of the [travelling] traveling wave dielectrophoretic force on the particles at the first frequency is altered in magnitude.

2. (Amended) A method according to Claim 1 wherein within a range of first frequencies constituting a [travelling] traveling wave dielectrophoretic window, the particles experience a [travelling] traveling wave dielectrophoretic force of which there is a real part which is negative and of which there is also an imaginary part, and wherein the application of the second signal causes the frequency range of the window to vary in width.

3. (Amended) A method according to Claim 1 in which the frequency of the second signal is selected so that [the] levitation height of the particles above the electrodes applying the signals is varied.

4. (Amended) A method according to [any one of Claims 1 to 3 in which there are] Claim 1, 2 or 3, in which two types of [particle] particles in suspension are present, and the second frequency is selected so that [the] speed of travel of at least one particle type is varied.

5. (Amended) A method according to Claim 4 in which the second frequency is selected so that [the] relative speed of travel of the two [particle] types of particles is increased.

6. (Amended) A method according to Claim 5 in which one particle type travels and [the other] one particle type does not travel.

7. (Amended) A method according to Claim 4 in which the second frequency is selected so that [the] relative speed of travel of the two [particle] types of particles is decreased.

8. (Amended) A method according to Claim 4 in which the second frequency is selected so that [both] the two types of [particle] particles travel at the same time.

9. (Amended) A method according to Claim 4 in which the second frequency is selected so that the two types of [particle] particles travel in opposite directions.

10. (Amended) A method according to [any one of Claims 1 to 9] Claim 1, 2 or 3 in which the second signal generates a static DEP field.

11. (Amended) A method according to [any one of Claims 1 to 9] Claim 1, 2 or 3 in which the second signal generates a second [travelling] traveling wave dielectrophoretic field.

12. (Amended) A method according to Claim 11 in which the first and second [travelling] traveling wave fields are arranged to move the particles in different directions.

15. (Amended) A method according to [any preceding] Claim 1, 2 or 3 further comprising applying a third signal at a third frequency whereby either the real part or the imaginary part of the [travelling] traveling wave dielectrophoretic force on the particles is altered in magnitude.

16. (Amended) A method of separating unwanted particles from body fluid particles [comprises] comprising applying to a suspension of both types of [particle] particles in a liquid a TWD field at a first frequency, and simultaneously applying a second electrical field at a

second frequency, whereby [the] speed or direction of travel in the TWD field of one particle type is altered.

17. (Amended) A method according to Claim 16 in which [the] an unwanted type of particles [are] is cancer cells and the body fluid particles are blood cells.

21. (Amended) A method according to [any preceding] Claim 1 or 16 in which the second signal is selected to induce a hydrodynamic fluid movement of said suspension.

22. (Amended) A method of applying TWD to human blood cells [comprises] comprising applying to a suspension of said cells, as first TWD, a signal at a frequency of 55 kHz and a second, static DEP signal at a frequency of 55 kHz, whereby the TWD window extends between 10 kHz and 18 MHZ.

23. (Amended) Apparatus for [the application of travelling] applying traveling wave dielectrophoresis comprising an electrode array on a substrate, first frequency signal operating means, frequency signal generating means, means for electrically summing [the] two signals from such means and applying the summed signal to the electrode array.

24. (Amended) Apparatus according to Claim 23 [and] including at least a third signal generating means for applying at least a third signal to the electrodes.

25. (Amended) Apparatus according to [one of Claims] Claim 23 [and] or 24 in which the substrate is transparent

and further comprising illumination means to illuminate the substrate and viewing means to view any particles on the substrate.